

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended): A semiconductor device comprising:

an SOI substrate including a substrate having an insulative surface and a semiconductor layer provided on said surface of said substrate, said semiconductor layer having a first active region of a first conductivity type and a second active region of the first conductivity type both of which are provided in a main surface thereof;

an isolation insulating film formed between said first and second active regions in said main surface of said semiconductor layer, leaving a first semiconductor region which is part of said semiconductor layer between the isolation insulating film and said surface of said substrate;

a first oxide film formed on said first and second active regions and a surface of said isolation insulating film;

a silicon nitride film formed on all upper surfaces of said first oxide film;

a second oxide film formed on a all upper surfaces of said silicon nitride film; and

at least one wire formed on said second oxide film.

Claim 2 (Previously Presented): A semiconductor device comprising:

an SOI substrate including a substrate having an insulative surface and a semiconductor layer provided on said surface of said substrate, said semiconductor layer having a first active region of a first conductivity type and a second active region of the first conductivity type both of which are provided in a main surface thereof;

an isolation insulating film formed between said first and second active regions in said main surface of said semiconductor layer, leaving a first semiconductor region which is part of said semiconductor layer between the isolation insulating film and said surface of said substrate;

a first oxide film formed on said first and second active regions and a surface of said isolation insulating film;

a silicon nitride film formed on all upper surfaces of said first oxide film;

a second oxide film formed on a surface of said silicon nitride film; and

at least one wire formed on said second oxide film, wherein

said substrate includes a semiconductor substrate and a buried insulating film entirely provided on a main surface of said semiconductor substrate,

said semiconductor device further comprising:

first source region and drain region of a second conductivity type formed in said main surface of said semiconductor layer of said first active region separated from each other;

a first gate electrode formed on said main surface of said semiconductor layer with a first gate insulating film interposed therebetween as to oppose a region sandwiched between said first source region and drain region;

a first impurity region of the first conductivity type formed in said second active region, being electrically connected to said region sandwiched between said first source region and drain region through said first semiconductor region below said isolation insulating film; and

a first wire, a second wire and a third wire connected to said first source region and drain region and said first impurity region through contact holes which are formed as to penetrate said first and second oxide films and said silicon nitride film, respectively,

wherein said at least one wire includes said first to third wires.

Claim 3 (Previously Presented): The semiconductor device according to claim 2,
wherein

said semiconductor layer further has a third active region of the second conductivity type and a fourth active region of the second conductivity type both of which are provided in said main surface thereof, and

said isolation insulating film is further provided between said third and fourth active regions and between said first and fourth active regions, said isolation insulating film provided between said third and fourth active regions is formed in said main surface of said semiconductor layer, leaving a second semiconductor region which is part of said semiconductor layer between itself and said buried insulating film, and said isolation insulating film provided between said first and fourth active regions is formed in said main surface of said semiconductor layer, leaving a third semiconductor region which is part of said semiconductor layer between itself and said buried insulating film,

said semiconductor device further comprising:

second source region and drain region of the first conductivity type formed in said main surface of said semiconductor layer of said fourth active region at a predetermined distance;

a second gate electrode formed on said main surface of said semiconductor layer with a second gate insulating film interposed therebetween as to oppose to a region sandwiched between said second source region and drain region; and

a second impurity region of the second conductivity type formed in said main surface of said semiconductor layer of said third active region, being electrically connected to said region sandwiched between said second source region and drain region through said second semiconductor region below said isolation insulating film,

wherein said first oxide film, said silicon nitride film and said second oxide film extend onto said main surface of said semiconductor layer in said third and fourth active regions,

said semiconductor device further comprising:

a fourth wire, a fifth wire and a sixth wire connected to said second source region and drain region and said second impurity region through said contact holes which are formed in said first and second oxide films and said silicon nitride film, respectively.

Claim 4 (Previously Presented): The semiconductor device according to claim 2, wherein

said semiconductor layer further has a third active region of the second conductivity type and a fourth active region of the second conductivity type both of which are provided in said main surface thereof, and

said isolation insulating film is further provided between said third and fourth active regions and between said first and fourth active regions, said isolation insulating film provided between said third and fourth active regions is formed in said main surface of said semiconductor layer, leaving a second semiconductor region which is part of said semiconductor layer between itself and said buried insulating film, and said isolation insulating film provided between said first and fourth active regions is formed as to reach said buried insulating film,

said semiconductor device further comprising:

second source region and drain region of the first conductivity type formed in said main surface of said semiconductor layer of said fourth active region at a predetermined distance;

a second gate electrode formed on said main surface of said semiconductor layer with a second gate insulating film interposed therebetween as to oppose to a region sandwiched between said second source region and drain region; and

a second impurity region of the second conductivity type formed in said main surface of said semiconductor layer of said third active region, being electrically connected to said region sandwiched between said second source region and drain region through said second semiconductor region below said isolation insulating film,

wherein said first oxide film, said silicon nitride film and said second oxide film extend onto said main surface of said semiconductor layer in said third and fourth active regions,

said semiconductor device further comprising:

a fourth, a fifth and a sixth wire connected to said second source region and drain region and said second impurity region through said contact holes which are formed in said first and second oxide films and said silicon nitride film, respectively.

Claim 5 (Original): The semiconductor device according to claim 2, wherein said first and second wires connected to said source region and drain region include wires extending to said surfaces of said isolation insulating films adjacent to said first source region and drain region respectively.

Claim 6 (Original): The semiconductor device according to claim 5, wherein said first semiconductor region below said isolation insulating film has partial impurity regions of the same conductivity type in respective regions adjacent to said first source region and drain region.

Claim 7 (Previously Presented): The semiconductor device according to claim 1, wherein said silicon nitride film is entirely formed on said first oxide film except a portion where contact holes are formed.

Claim 8 (Original): The semiconductor device according to claim 2, further comprising:

a metal silicide layer formed in surfaces of said source region and drain region.

Claim 9-14 (Canceled).

Claim 15 (Previously Presented): A semiconductor device comprising:

an SOI substrate including a semiconductor substrate, a buried insulating film entirely provided to continuously cover a main surface of said semiconductor substrate and a semiconductor layer provided on a surface of said buried insulating film, said semiconductor layer having a first active region of a first conductivity type and a second active region of the first conductivity type both of which are provided in a main surface thereof;

an isolation insulating film formed between said first and second active regions in said main surface of said semiconductor layer, leaving a first semiconductor region which is part of said semiconductor layer between said isolation insulating film and said surface of said substrate;

a silicon nitride film formed on said first and second active regions and a surface of said isolation insulating film;

an interlayer insulating film formed on a surface of said silicon nitride film;

at least one wire formed on said silicon nitride film;

first source region and drain region of a second conductivity type formed in said main surface of said semiconductor layer of said first active region separated from each other;

a first gate electrode formed on said main surface of said semiconductor layer with a first gate insulating film interposed therebetween as to oppose a region sandwiched between said first source region and drain region;

a first impurity region of the first conductivity type formed in said second active region, being electrically connected to said region sandwiched between said first source region and drain region through said first semiconductor region below said isolation insulating film; and

a first wire, a second wire and a third wire connected to said first source region and drain region and said first impurity region through contact holes which are formed as to penetrate said interlayer insulating film and said silicon nitride film, respectively,

wherein said at least one wire includes said first to third wires.

Claim 16 (Canceled).

Claim 17 (Previously Presented): The semiconductor device according to claim 15, wherein

said semiconductor layer further has a third active region of the second conductivity type and a fourth active region of the second conductivity type both of which are provided in said main surface thereof, and

said isolation insulating film is further provided between said third and fourth active regions and between said first and fourth active regions, said isolation insulating film provided between said third and fourth active regions is formed in said main surface

of said semiconductor layer, leaving a second semiconductor region which is part of said semiconductor layer between itself and said buried insulating film, and said isolation insulating film provided between said first and fourth active regions is formed in said main surface of said semiconductor layer, leaving a third semiconductor region which is part of said semiconductor layer between itself and said buried insulating film,

said semiconductor device further comprising:

second source region and drain region of the first conductivity type formed in said main surface of said semiconductor layer of said fourth active region at a predetermined distance;

a second gate electrode formed on said main surface of said semiconductor layer with a second gate insulating film interposed therebetween as to oppose to a region sandwiched between said second source region and drain region; and

a second impurity region of the second conductivity type formed in said main surface of said semiconductor layer of said third active region, being electrically connected to said region sandwiched between said second source region and drain region through said second semiconductor region below said isolation insulating film,

wherein said silicon nitride film and said interlayer insulating film extend onto said main surface of said semiconductor layer in said third and fourth active regions,

said semiconductor device further comprising:

a fourth wire, a fifth wire and a sixth wire connected to said second source region and drain region and said second impurity region through said contact holes which are formed in said interlayer insulating film and said silicon nitride film, respectively.

Claim 18 (Previously Presented): The semiconductor device according to claim 15, wherein

said semiconductor layer further has a third active region of the second conductivity type and a fourth active region of the second conductivity type both of which are provided in said main surface thereof, and

said isolation insulating film is further provided between said third and fourth active regions and between said first and fourth active regions, said isolation insulating film provided between said third and fourth active regions is formed in said main surface of said semiconductor layer, leaving a second semiconductor region which is part of said semiconductor layer between itself and said buried insulating film, and said isolation insulating film provided between said first and fourth active regions is formed as to reach said buried insulating film,

said semiconductor device further comprising:

second source region and drain region of the first conductivity type formed in said main surface of said semiconductor layer of said fourth active region at a predetermined distance;

a second gate electrode formed on said main surface of said semiconductor layer with a second gate insulating film interposed therebetween as to oppose to a region sandwiched between said second source region and drain region; and

a second impurity region of the second conductivity type formed in said main surface of said semiconductor layer of said third active region, being electrically connected to said region sandwiched between said second source region and drain region through said second semiconductor region below said isolation insulating film,

wherein said silicon nitride film and said interlayer insulating film extend onto said main surface of said semiconductor layer in said third and fourth active regions,

said semiconductor device further comprising:

a fourth, a fifth, and a sixth wire connected to said second source region and drain region and said second impurity region through said contact holes which are formed in said interlayer insulating film and said silicon nitride film, respectively.

Claim 19 (Previously Presented): The semiconductor device according to claim 15, wherein

said first and second wires connected to said source region and drain region include wires extending to said surfaces of said isolation insulating films adjacent to said first source region and drain region, respectively.

Claim 20 (Previously Presented): The semiconductor device according to claim 19, wherein

said first semiconductor region below said isolation insulating film has partial impurity regions of the same conductivity type in respective regions adjacent to said first source region and drain region.

Claim 21 (Previously Presented): The semiconductor device according to claim 15, wherein

said silicon nitride film includes a silicon nitride film entirely formed on a main surface of said semiconductor layer, except a portion where contact holes are formed.

Claim 22 (Previously Presented): The semiconductor device according to claim 15, further comprising:

a metal silicide layer formed in surfaces of said source region and drain region.